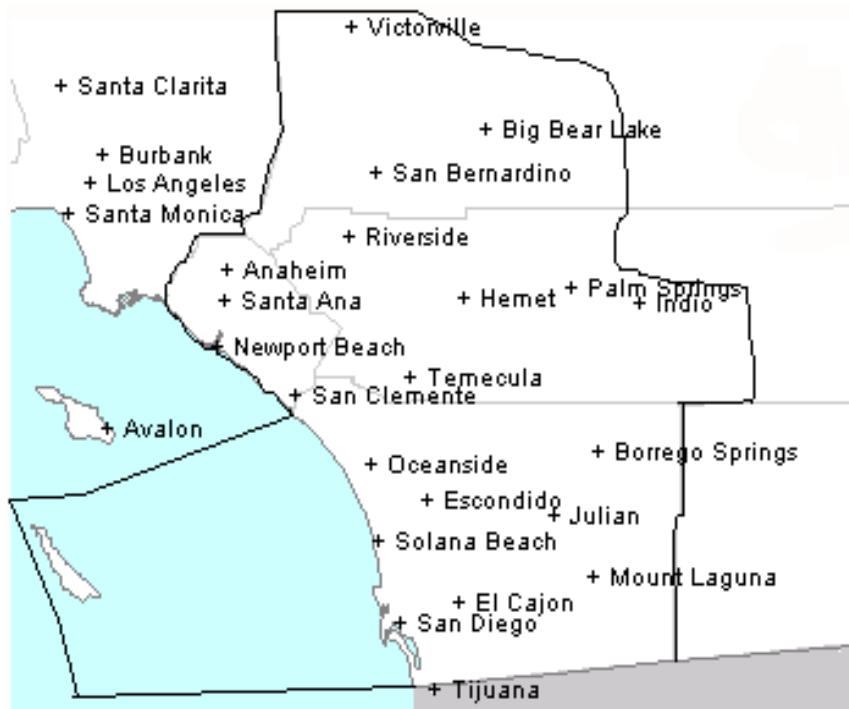


The NWS in San Diego

The San Diego Forecast Office prepares forecasts and any necessary warnings for a sizable area of Southern California, which is called a County Warning Forecast Area (CWFA or CWA). The San Diego CWA comprises all of Orange and San Diego Counties, western Riverside County, southwestern San Bernardino County and adjacent coastal waters off San Diego County. The CWA is



divided into forecast zones, each containing roughly similar climates. A zone forecast is made for each zone. Often when a similar forecast is expected for more than one zone, these zones are grouped together. Forecast operations run continuously 24 hours a day, 365 days a year.

The San Diego Forecast Office meteorologists are among the best experts of local weather and climate. They keep informed of research developments and the latest discoveries and news that impact the weather, such as El Niño and climate prediction,

but do not conduct the research themselves and therefore are not experts in those research fields.

A History of the NWS in San Diego

Weather observations were first taken in San Diego from 1849 to 1871 at the San Diego Mission de Alcala and at Ft. Stockton, now part of Presidio Park, by the Medical Corps of the Army. When the Army's Signal Service assumed the task in 1871, the weather observing station was moved downtown to Horton Square at present day Broadway between 3rd and 4th Avenues. The station moved around this area several times from 1871 until 1940, but always remained within a stone's throw of present day Horton Plaza. In 1890 the first Weather Bureau Office was located on 5th Avenue between E and F streets. In 1930 the office and a second weather observing station were relocated to the Lindbergh Municipal Airport 1 ½ miles northwest of the city office, but observations were continued downtown. In 1940 observations became official at Lindbergh Field. This new site was considered close enough and sufficiently similar in climate to the downtown location that the climate record was continued uninterrupted rather than starting a new separate record for the new location. In 1969 the weather equipment was moved to its current location at the General Aviation Building at Lindbergh Field, now San Diego's International Airport.

In 1970 the Lindbergh Field office became a National Weather Service Office with limited forecasting responsibility. The NWS office in Los Angeles provided the general forecasts for all of Southern California. The San Diego office adapted these forecasts for local use and issued warnings for San Diego County in addition to the regular duties of taking weather observations at Lindbergh Field. In October 1995, the office at Lindbergh Field moved to Rancho Bernardo in the northern reaches of the city and discontinued taking the weather observations, but still maintained the climate record at Lindbergh with the help of automated equipment installed in 1996. In 1997 the San Diego Office made a gradual transition to full forecast office capacity. Orange, western Riverside, and southwestern San Bernardino Counties were added to San Diego County to create the current area of responsibility. Since 1997 all forecasts and warnings for our area originate from the office in Rancho Bernardo. Marine forecast and warning responsibility for adjacent coastal waters were added in 1999. In late 2002, the Interactive Forecast Preparation System (IFPS) was implemented. This bold new forecasting system provides NWS forecasts in a graphical format and with a great amount of detail.

The People of the NWS in San Diego

The current staff at the NWS in San Diego consists of 24 employees. Four managers and one assistant direct the work activities and administrative duties of the office. An Information Technology Officer maintains computer systems. 11 forecasters (or meteorologists) prepare and disseminate forecasts and warnings, and attend to focal point duties and other projects. Four hydrometeorological technicians and one meteorologist intern collect and disseminate data, operate the NOAA Weather Radio, manage the climate observer program, and answer phone calls from the public and media. Three electronic technicians maintain and repair observational equipment, including the two Doppler Radars.

James Purpura is the Meteorologist-in-Charge (MIC). He ultimately oversees all operations and work in the office and implements changes in policy or practices when required. Questions about policy, funding, employment, technology, and the future are best directed to him.

Ed Clark is the Warning Coordination Meteorologist (WCM). He maintains relationships with our partners in service, i.e., emergency management, agencies of flood control and law enforcement, fire departments, and the media. He keeps the staff current and proficient in correct warning practices, completes verification studies, and performs a variety of outreach activities.

Ivory Small is the Science and Operations Officer (SOO). He ensures that good forecasting techniques and good science are used by meteorologists through training and development. He implements the latest developments in technology and meteorological theory from the research community and produces some of the research himself. He is the best resource for questions about the meteorology behind the weather.

The first line of phone communication is usually with a hydrometeorological technician. They answer general questions about the weather, climate, or forecast, or can point you in the right direction for the answer. Forecasters on duty can provide greater detail about the reasons behind the current weather or forecast. Many questions of this nature can be answered by consulting the latest Area Forecast

Discussion.

Occasionally, when not working basic operations directly, each member of the staff performs focal point duties. These include directing local programs, conducting special projects or overseeing other areas of responsibility. A list of the entire staff and the numerous duties they perform in addition to operational duties can be found on our staff web page:

www.wrh.noaa.gov/sandiego/office/staff.htm.

Communications and Product Dissemination

Products and information disseminated from the NWS are transmitted in a coded format. Each product name is identified by its code containing eight or nine letters. The code formula is cccNNNxxx, where ccc is the regional node, NNN is the product identifier, and xxx is normally the originating forecast office. For example, LAXZFPSGX indicates Los Angeles (LAX) is the regional node, the Zone Forecast Product (ZFP) is the name of the product, and San Diego-Rancho Bernardo (SGX) is the originating office. When a product is sent from the office, it goes to Gateway, the communications center for the NWS. From there, the products are disseminated to the world. News services and private weather information companies then pick up these products and send them to users. The NWS maintains the largest meteorological telecommunications switching center in the world, sending and receiving over 400,000 meteorological bulletins each day.

The NWS relies heavily on its partners in emergency management and the media to keep communities safe and well informed. Emergency managers and the media have timely access to severe weather information through a number of systems and services. For information on how to set up a service to receive real-time weather information, contact our Warning Coordination Meteorologist, Ed Clark, at 858-675-8700 ext. 223.

The **Family of Services** includes the NOAA Weather Wire Service, NOAAPort and news agencies such as AP, UPI and City News Service. These systems provide paying subscribers consistent and timely weather information in real time.

Private commercial information vendors supply numerous paying customers with weather information packages tailored to their needs.

Emergency management and flood control agencies in California can receive timely information through the **California Law Enforcement Telecom System (CLETS)**. This originates from the State Office of Emergency Services in Sacramento. The **Emergency Manager's Weather Information Network (EMWIN)** provides real time information for a one-time cost for equipment and installation. Email and pager notification can be easily set up. This information may not be as reliable or timely as that found with the Family of Services. The **Interactive Weather Information Network (IWIN)** is a free Internet site with live data similar to EMWIN and a large selection of products. You can find it at: **www.weather.gov**. However, it is subject to the availability and connection problems inherent to the

Internet.

Please note: The Internet is **not** the primary means of disseminating weather information from the NWS and **should not be relied on**, especially during significant weather events.

Local Programs - Click on “local programs” on our homepage for more information

The **Aviation** program encompasses the preparation and verification of Terminal Aerodrome Forecasts (TAFs) and Transcribed Weather Broadcasts (TWEBs). TAFs are coded 24-hour forecasts updated at least every six hours. TAFs give detailed weather conditions expected at six area airports: San Diego-Lindbergh Field (SAN), McClellan-Palomar Airport (CRQ), Orange County-John Wayne (SNA), Ontario (ONT), Palm Springs (PSP), and Thermal (TRM). Soaring forecasts are generated daily. Aircraft accident reports are issued for fatal accidents.

The **Cooperative Observer Program** is a vast network of thousands of weather stations across the nation. Local volunteers keep a daily climate record with data collected from equipment supplied and maintained by the NWS. San Diego’s Cooperative Program Manager directs this work at over 89 official weather stations in our region. Data from some of the stations are used for hydrology and forecasting purposes. Climate data are forwarded to the National Climatic Data Center and becomes part of the official climate record.

Fire Weather forecasts are essential for fire fighting efforts by a number of agencies. Forecast responsibility was assumed entirely by the San Diego NWS office in early 2003. Routine Fire Weather Forecasts will be issued detailing sky condition, winds, relative humidity, and lightning potential. Specific spot forecasts will be given by request for particular fire fighting or controlled burn situations. Fire Weather Watches and Red Flag Warnings are issued when dangerous fire potential exists.

The **Hydrology** program provides guidance and data for forecasting rainfall amounts and flooding. The hydrology focal point works closely with NWS hydrologists, river forecasters and flood control agencies to ensure information that is correct, useful and timely gets into the hands of forecasters during possible flooding events. Networks of instrumentation such as rain gauges and stream gauges are maintained to monitor rapidly changing hydrological events. Computer models and software are developed and maintained to permit accurate and timely issuance of hydrological products such as flash flood warnings.

The **Marine** program oversees the quality preparation of marine forecasts. The Coastal Waters Forecast describes wind and sea conditions out to five days; the Surf Forecast provides details about the next day’s surf. Relationships with the marine community are maintained, along with a network of coastal observation equipment for frequent observational data. Warning systems are ready to be used in the event of large surf, coastal flooding, tidal overflow, tsunamis, or severe weather of any kind over the coastal waters.

NOAA Weather Radio (NWR) continuously broadcasts a cycle of warnings, forecasts and current

conditions on four separate frequencies on the VHF band, originating from our office. Specially designed receivers have the capability to alarm and play a warning at the moment it is issued. This is possible due to ever- improving computer-synthesized voice technology. Work is underway to provide Spanish language capability to radio broadcasts.

The following table includes transmitter locations, names, and frequencies:

San Diego (east of Poway)	KEC-62	162.40 MHz
Santa Ana Mountains (south of Corona)	WWG-21	162.45 MHz
Coachella Valley (east of Indio)	KIG-78	162.40 MHz
Strawberry Peak (south of Lake Arrowhead)	WXM-66	162.50 MHz

The **Public Forecast** is controlled by the management of the office. The flagship product is the Zone Forecast, the routine forecast for the masses issued at least twice daily. Forecasts of sky condition, temperatures, precipitation and significant winds are included in the forecast which extends to seven days. Area Forecast Discussions are issued at least three times a day. They give the current reasoning behind the forecast and explain any additional action taken. Quantitative Precipitation Forecasts are issued during the wet season to indicate expected rainfall amounts. Hydrologic Outlooks containing flash flood potential indices are issued during the summer thunderstorm season in the mountains and deserts. Hazardous Weather Outlooks are issued early each morning highlighting possible hazardous weather expected for the upcoming week. Any necessary watches, warnings, advisories, and other statements are issued under the direction of the Public Forecaster on duty.

The **Weather Spotter Program** is another network of volunteers. A weather spotter is a person who observes significant weather and relays the information to the NWS. With this information, forecasters can issue warnings and update forecasts if necessary in a more accurate and timely manner. Nearly 700 weather spotters are keeping an eye to the sky in our forecast area. **Skywarn** is a more proactive spotter network involving ham radio communications to relay weather information during active weather events. Spotter training presentations are held occasionally to recruit and train weather spotters.

Weather Safety and Preparedness - Click on “Weather Safety - Preparedness” on our homepage for more information.

The primary mission and responsibility of the National Weather Service is to protect life and property. The goal is to warn for all potentially dangerous weather events with sufficient lead time so emergency personnel and the public can take action to eliminate or minimize the impact. However, for many reasons a dangerous weather event may strike without a warning being issued, or the public may not be otherwise prepared. Weather awareness and preparedness are vitally important especially in our region where residents can become complacent because dangerous weather is relatively infrequent.

When a warning is issued initially, the **Emergency Alert System** (EAS) is activated. Local news radio stations with this responsibility receive this alert of three tone bursts and proceed to broadcast the warning over their station. In our area KOGO 600 AM Radio is the primary EAS activator. On television the warning message scrolls across the bottom of the screen. NOAA weather radios broadcast the warning direct from the NWS office (specially designed receivers kick on automatically when a warning is issued). The NWS - San Diego web site will indicate the warning on color coded maps. Sadly, these efforts are sometimes not sufficient to inform all endangered parties in a timely fashion. We encourage all residents and visitors to become aware of the potential weather dangers associated with the area in which they live, work, and visit, and to prepare accordingly. See Appendix E for weather safety information.